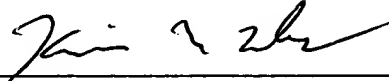


Applicants submit that at least one of the other errors mentioned above was made by the applicants. Therefore, please charge the fee of \$100.00 to deposit account no. 20-0782/APPM/6303.02 (KMT).

Respectfully submitted,



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UNITED STATES PATENT AND TRADEMARK OFFICE

CERTIFICATE OF CORRECTION

PATENT NO. : 6,936,906

Page 1 of 8

APPLICATION NO. : 09/965,373

DATED : Aug. 30, 2005

INVENTOR(S) : Hua CHUNG, Ling CHEN, Jick YU, Mei CHANG

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

On the Cover of the Patent

Item [56], References Cited, U.S. PATENT DOCUMENTS: Please include the following references:

6,686,271	2/2004	Raaijmakers et al.
6,660,660	12/2003	Haukka et al.
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6,630,201	10/2003	Chiang et al.
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Page 2 of 8

APPLICATION NO. : 09/965,373

DATED : Aug. 30, 2005

INVENTOR(S) : Hua CHUNG, Ling CHEN, Jick YU, Mei CHANG

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

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20030190423	10/2003	Yang et al.
20030186495	10/2003	Saanila et al.
20030185980	10/2003	Endo

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APPLICATION NO. : 09/965,373

DATED : Aug. 30, 2005

INVENTOR(S) : Hua CHUNG, Ling CHEN, Jick YU, Mei CHANG

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20030173586	9/2003	Moriwaki et al.
20030172872	9/2003	Thakur et al.
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20030165615	9/2003	Aaltonen et al.
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PATENT NO. : 6,936,906

Page 4 of 8

APPLICATION NO. : 09/965,373

DATED : Aug. 30, 2005

INVENTOR(S) : Hua CHUNG, Ling CHEN, Jick YU, Mei CHANG

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20020197881	12/2002	Ramdani et al.
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20020074588	6/2002	Lee
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AUG 31 2005

UNITED STATES PATENT AND TRADEMARK OFFICE

CERTIFICATE OF CORRECTION

PATENT NO. : 6,936,906

Page 5 of 8

APPLICATION NO. : 09/965,373

DATED : Aug. 30, 2005

INVENTOR(S) : Hua CHUNG, Ling CHEN, Jick YU, Mei CHANG

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

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UNITED STATES PATENT AND TRADEMARK OFFICE CERTIFICATE OF CORRECTION

PATENT NO. : 6,936,906

Page 6 of 8

APPLICATION NO. : 09/965,373

DATED : Aug. 30, 2005

INVENTOR(S) : Hua CHUNG, Ling CHEN, Jick YU, Mei CHANG

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

Item [56], References Cited, OTHER PUBLICATIONS: Please include the following references:

Applied Phys. Lett. 71 (25), December 22, 1997 (3604-06)

Chang-Wook et al. "Growth and Characterization of Aluminum Oxide (Al_2O_3) Thin Films by Plasma-Assisted Atomic Layer Controlled Deposition," J. Korean Inst. Met. Mater., Vol. 38, No. 10, Oct. 2000 pp. 1395-1399.

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UNITED STATES PATENT AND TRADEMARK OFFICE

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PATENT NO. : 6,936,906

Page 7 of 8

APPLICATION NO. : 09/965,373

DATED : Aug. 30, 2005

INVENTOR(S) : Hua CHUNG, Ling CHEN, Jick YU, Mei CHANG

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

Paranjpe et al. "Atomic Layer Deposition of AlO_3 for Thin Film Head Gap Applications," J. Elec. Soc., Vol. 148, No. 9, Sept., 2001 pp. G465-471.

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Ritala et al. "Surface Roughness Reduction in Atomic Layer Epitaxy Growth of Titanium Dioxide Thin Films," Thin Solid-Films, Vol. 249, No. 2 (15 Sept. 1994), pp. 155-62.

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In the Specification

Column 2, Line 30: Change "alloy" to --alloy--

Column 2, Line 34: Delete "of"

Column 3, Line 10: Change "embodiment" to --embodiments--

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It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

Column 5, Line 56: After "Ta(N(Et)Me)₅", insert --,--

Column 6, Line 18: Insert a comma after "(C₄H₉N₂H₃)"

Column 8, Line 36: Change "include" to --includes--

In the Claims

Column 16, Claim 7, Line 17: Change the colon to a semicolon

Column 16, Claim 14, Line 50: Change "7" to --1--

Column 16, Claim 15, Line 54: Change "7" to --1--

Column 16, Claim 18, Line 63: Change "n" to --in--

MAILING ADDRESS OF SENDER (Please do not use customer number below):

Keith M. Tackett
PATTERSON & SHERIDAN, L.L.P.
3040 Post Oak Blvd., Suite 1500
Houston, TX 77056-6582

This collection of information is required by 37 CFR 1.322, 1.323, and 1.324. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1.0 hour to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Attention Certificate of Corrections Branch, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor Application of:
Chung, et al.

Serial No.: 09/963,373

Confirmation No.: 6509

Filed: September 26, 2001

For: INTEGRATION OF
BARRIER LAYER AND
SEED LAYER

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Group Art Unit: 2814

Examiner: Wai Sing Louie

MAIL STOP AMENDMENT
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

CERTIFICATE OF MAILING 37 CFR 1.8	
I hereby certify that this correspondence is being deposited on August 31, 2004 with the United States Postal Service as First Class Mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450 Alexandria, VA 22313-1450.	
8/31/04 Date	<i>[Signature]</i> Signature

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

The Applicants, and the Attorney who signs below on the basis of the information supplied by the inventor and the information in his file, submit herewith patents, publications, or other information of which they are aware, which may be material to the examination of this application and in respect of which there may be a duty to disclose in accordance with 37 CFR § 1.56.

While the information submitted in this Supplemental Information Disclosure Statement may be material pursuant to 37 CFR § 1.56, it is not intended to constitute an admission that any patent, publication, or other information referred to therein is prior art for this invention unless specifically designated as such.

In accordance with 37 CFR § 1.97, this Supplemental Information Disclosure Statement is not to be construed as a representation that a search has been made or that no other possibly material information as defined under 37 CFR § 1.56(a) exists.

The patents and/or publications submitted herewith are set forth on the attached Form PTO-1449.

AUG 31 2004

If the sum of \$180.00 is due under 37 CFR § 1.17(p) pursuant to § 1.97, the Commissioner is hereby authorized to charge this fee, and any other fee necessary to make this submission timely, to the Deposit Account No. 20-0782/AMAT/6303.02/KMT.

Respectfully submitted,



Keith M. Tackett
Registration No. 32,008
MOSER, PATTERSON & SHERIDAN, L.L.P.
3040 Post Oak Blvd. Suite 1500
Houston, TX 77056
Telephone: (713) 623-4844
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Attorney for Applicant(s)

Substitute for form 1449/PTO

**SUPPLEMENTAL INFORMATION
DISCLOSURE STATEMENT
APPLICANT**

(Use as many sheets as necessary)

Sheet 1

of

9

Application Number

09/963,373

Filing Date

September 26, 2001

First Named Inventor

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U.S. PATENT DOCUMENTS

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		Number-Kind Code ² (if known)			
	A1	US-6686271 B2	02/03/2004	Raaijmakers, et al.	
	A2	US-6660660 B2	12/09/2003	Haukka, et al.	
	A3	US-6632279 B1	10/14/2003	Ritala, et al.	
	A4	US-6630201 B2	10/07/2003	Chiang, et al.	
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Sheet 2

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9

Application Number

09/963,373

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September 26, 2001

First Named Inventor

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Group Art Unit

2814

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Attorney Docket Number

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Sheet 3

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9

Application Number

09/963,373

Filing Date

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First Named Inventor

Chung, et al.

Group Art Unit

2814

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		Number-Kind Code ² (if known)			
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Sheet 4

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Application Number

09/963,373

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		Number-Kind Code ² (if known)			
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**SUPPLEMENTAL INFORMATION
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Sheet 6

of

9

Application Number

09/963,373

Filing Date

September 26, 2001

First Named Inventor

Chung, et al.

Group Art Unit

2814

Examiner Name

Wai Sing Louie

Attorney Docket Number

AMAT/6303.02/CPICOPPER/PJS

Submission Date

August 31, 2004

U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No. ¹	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code ² (if known)			
	A139	US-20020106846 A1	08/08/2002	Seutter, et al.	
	A140	US-20020106536 A1	08/08/2002	Lee, et al.	
	A141	US-20020106451 A1	08/08/2002	Skarp, et al.	
	A142	US-20020104481 A1	08/08/2002	Chiang, et al.	
	A143	US-20020098685 A1	07/25/2002	Sophie, et al.	
	A144	US-20020098627 A1	07/25/2002	Pomarede, et al.	
	A145	US-20020094689 A1	07/18/2002	Park	
	A146	US-20020092584 A1	07/18/2002	Soininen, et al.	
	A147	US-20020086111 A1	07/04/2002	Byun, et al.	
	A148	US-20020081844 A1	06/27/2002	Jeon, et al.	
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	A154	US-20020073924 A	06/20/2002	Chiang, et al.	
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	A157	US-20020048635 A1	04/25/2002	Kim, et al.	
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	A166	US-20010050039 A1	12/13/2001	Park	

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SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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Sheet 7

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Application Number

09/963,373

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First Named Inventor

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		Number-Kind Code ² (if known)			
	A167	US-20010028924 A1	10/11/2001	Sherman	
	A168	US-20010025979 A1	10/04/2001	Kim, et al.	
	A169	US-20010024387 A1	09/27/2001	Raaijmakers, et al.	
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	A171	US-20010009140 A1	07/26/2001	Bondestam, et al.	
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	A173	US-20010000866 A1	05/10/2001	Sneh, et al.	
	A174				

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Examiner Initials*	Cite No. ¹	Foreign Patent Document	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T ⁶
		Country Code ³ -Number ⁴ -Kind Code ⁵ (if known)				
	B1	EP 1,142,894 A2	10/10/2001	Morman, et al.		
	B2	EP 1,167,569 A1	01/02/2002	Park		
	B3	JP 07-300649 A	11/14/1995	Haruo		
	B4	JP 2001-111000	12/26/2002	Jong-Ho, et al.		
	B5	WO 99/01595	01/14/1999	Suntola, et al.		
	B6	WO 99/65064	12/16/1999	Hasper, et al.		
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	B8	WO 01/88972 A1	11/22/2001	Soininen, et al.		
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	B11	WO 02/067319 A2	08/29/2002	Kim, et al.		
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	B15	WO 02/45167 A2	06/06/2002	Hujanen, et al.		

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Sheet 8

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Application Number

09/963,373

Filing Date

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		Country Code ² -Number ⁴ -Kind Code ⁵ (if known)				
	B16	WO 02/45871 A1	06/13/2002	Chiang, et al.		
	B17	WO 03/044242 A2	05/30/2003	Chen, et al.		

NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published	T ²
	C1	Applied. Phys. Lett. 71 (25), December 22, 1997 (3604-6)	
	C2	Chang-Wook, et al. "Growth and Characterization of Aluminum Oxide (Al ₂ O ₃) Thin Films by Plasma-Assisted Atomic Layer Controlled Deposition," J. Korean Inst. Met. Mater., Vol. 38, No. 10, Oct. 2000 pp.1395-1399	
	C3	Chang-Wook, et al. "Plasma-assisted Atomic Layer Growth of High-Quality Aluminum Oxide Thin Films," Jpn. J. Appl. Phys. 1, Vol. 40, No. 1, Jan. 2001 pp. 285-289	
	C4	Clark-Phelps, et al. "Engineered Tantalum Aluminate and Hafnium Aluminate ALD Films for Ultrathin Dielectric Films with Improved Electrical and Thermal Properties," Mat. Res. Soc. Symp. Proc. Vol. 670 (2001)	
	C5	Eisenbraun, et al. "Atomic Layer Deposition (ALD) of Tantalum-based materials for zero thickness copper barrier applications," Proceedings of the IEEE 2001 International Interconnect Technology Conference (Cat. No. 01EX461) 2001	
	C6	Hwang, et al. "Nanometer-Size α -PbO ₂ -type TiO ₂ in Garnet: A Thermobarometer for Ultrahigh-Pressure Metamorphism," Science Vol. 288 (14 Apr 2000)	
	C7	International Search Report for PCT/US02/28715 dated May 30, 2003 (AMAT/6303-PCT)	
	C8	Juppo, et al. "Deposition of Copper Films by an Alternate Supply of CuCl and Zn," Journal of Vacuum Science & Technology, Vol. 15, No. 4 (July 1997), pp.2330-3	
	C9	Kukli, et al. "Atomic Layer Epitaxy Growth of Tantalum Oxide Thin Films from Ta(OC ₂ H ₅) ₅ and H ₂ O," Journal of the Electrochemical Society, Vol. 142, No. 5, May 1995; p. 1670-5	
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	C12	Kukli, et al., "Properties of Ta ₂ O ₅ -Based Dielectric Nanolaminates Deposited by Atomic Layer Epitaxy," Journal of the Electrochemical Society, Vol. 144, No. 1, Jan. 1997; p. 300-6	
	C13	Kukli, et al., "Tailoring the Dielectric Properties of HfO ₂ -Ta ₂ O ₅ Nanolaminates," Applied Physics Letters, Vol. 68, No. 26, June 24, 1996; p. 3737-9	
	C14	Martensson, et al. "Cu ₂ as Copper Source in Atomic Layer Epitaxy," Chemical Vapor Deposition. Proceedings of the Fourteenth International Conference and EUROCVI-11 (1997), pp. 1529-36	

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Sheet 9

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Application Number

09/963,373

Filing Date

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First Named Inventor

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Group Art Unit

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	C15	Martensson, <i>et al.</i> "Use of Atomic Layer Epitaxy for Fabrication of Si/TiN/Cu Structures," Journal of Vacuum Science & Technology, Vol. 17, No. 5 (Sept 1999), pp.2122-8	
	C16	Paranjpe, <i>et al.</i> "Atomic Layer Deposition of AlO ₃ for Thin Film Head Gap Applications," J. Elec. Soc., Vol. 148, No. 9 Sept., 2001 pp. G465-471	
	C17	PCT Written Opinion for PCT/US02/28715 DATED July 28, 2004 (AMAT/6303-PCT)	
	C18	Proceedings of the ICEEE 1998 International Interconnect Technology Conference - San Francisco, California, June 1-3, 1998	
	C19	Ritala, <i>et al.</i> "Atomic Force Microscopy Study of Titanium Dioxide Thin Films Grown by Atomic Layer Epitaxy," Thin Solid Films, Vol. 228, No. 1-2 (15 May 1993), pp.32-35	
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	C21	Ritala, <i>et al.</i> "Atomic Layer Epitaxy Growth of TiN Thin Films From TiI ₄ and NH ₃ ," J. Electrochem. Soc., Vol. 145, No. 8 (Aug, 1998) pp. 2914-20	
	C22	Ritala, <i>et al.</i> "Effects of Intermediate Zinc Pulses on Properties of TiN and NbN Films by Atomic Layer Epitaxy," Applied Surface Science, Vol. 120, No. 3-4, (Dec. 1997), pp. 199-212	
	C23	Ritala, <i>et al.</i> "Growth of Titanium Dioxide Thin Films by Atomic Layer Epitaxy," Thin Solid Films, Vol. 225, No. 1-2 (25 March 1993) pp. 288-95	
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	C25	Rossnagel, <i>et al.</i> "Plasma-enhanced Atomic Layer Deposition of Ta and Ti for Interconnect Diffusion Barriers," J. Vac. Sci. Technol. B., Vol. 18, No. 4 (July 2000); p2016-20	
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DOCKET No.: AMAT/6303.02/CP1/COPPER/PJS
SERIAL No.: 09/963,373
FILED: September 26, 2001
APPLICANT: Applied Materials, Inc.
INVENTOR: Chung, et al.

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FILED: September 26, 2001
APPLICANT: Applied Materials, Inc.
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